



In picture on the left, Dr. Joseph Needham is seen with Chancellor Pauline McClelland and President John Evans; on right, hooded, after Convocation.

A 'super-star' in 3 disciplines receives LL.D

The University of Toronto on Dec. 1 conferred the honorary degree of Doctor of Laws on Prof. Joseph Needham, Master of Gonville and Caius College, Cambridge, a scholar eminent in biochemistry, Sinology, and the history of science.

The occasion was the second of two fall Convocations and the one at which degrees were granted to more than 800 graduate students.

At the first fall Convocation, on Nov. 24, about 650 undergraduates received degrees, diplomas and certificates.

Prof. Needham was presented to Chancellor Pauline McClelland by Dr. J. W. Abrams, director of the Institute for the History of Science and Technology, who said in his citation:

"Canadians have accepted the word super-star as part of their vocabulary for sport. May I extend its usage to the field of scholarship to apply to one whose brilliance is not evanescent but will serve as a source of illumination to all who follow him. To achieve such stellar status in a single area is a remarkable accomplishment. To have done so in a number of fields is even more so."

"Dr. Joseph Needham is indeed a super-star, who has made lasting contributions in biochemistry, in Sinology, and in the history of science. He has contributed in these fields both individually and collectively. Through his efforts the vast and important field of the history of science and technology in China has been recognized, explored, and made available to us in the West. For this he has earned whatever recognition academia can extend."

"Eccentric subjects have been explored by others. However, none has combined the thoroughness, which has made *Science and Civilization in China* a superb scholarly work, with a clarity of exposition that renders it accessible to the interested as well as the specialist. Dr. Needham is not only the guiding light of a truly monumental work, but the author of one that is readable. This is an unparalleled accomplishment."

President John Evans, in his address to the graduating class, mentioned the scientific distinction of Mrs. Needham, who was present to see her husband receive the University's highest honour.

THE GOVERNING COUNCIL

Urge steps to ease fees-loan hardships

At the beginning of the meeting of the Governing Council yesterday afternoon, the Chairman, Mr. Harding, called the Council's attention to the honour that had been achieved by two of its members, Paul Cadario and Brian Morgan, who have won Rhodes Scholarships, Mr. Cadario to Ontario and Mr. Morgan to Alberta.

The Council went into Committee of the Whole and discussed the budget recommendations from the Executive

Committee in camera. Subsequently the Committee of the Whole reported to the Council that the budget recommendations were endorsed with certain comments.

A resolution from the Council's Academic Affairs Committee regarding tuition fees and student aid was discussed at some length, not because of any opposition to it but because some members thought that those views should be expressed in

even stronger language. The text of the resolution as adopted is as follows:

The Committee considered and approved a revised resolution on tuition fees and student aid. (The original resolution had been referred back by the Governing Council to the Academic Affairs Committee for re-framing in the light of comments made at the previous meeting of the Executive Committee.)

Your Committee recommends

THAT the Governing Council express its concern about recent changes in tuition fees and student aid which have been introduced during the current year by the Provincial Government. This concern is focussed on four issues in particular:

- (1) The simultaneous increase in tuition fees and decrease in grant aid may further deter those students who already find difficulty in proceeding to a university education for financial reasons.
- (2) The large increases in tuition fees for graduate students in universities and for certain categories of students in other post-secondary institutions impose disproportionate financial hardships.
- (3) Greater participation in university education by part-time students, particularly those from lower economic groups, will be inhibited unless financial aid is also available to part-time students.
- (4) While acknowledging that the changes in the criteria for independence, which have been made since the inception of the program, were intended to produce greater equity in the distribution of aid to individuals, the presently declared age of independence is arbitrary and imposes strains on some individuals and their families which would be alleviated if the age requirement for independent status were removed.

We therefore urge that methods of reviewing the hardships and reduction of accessibility resulting from the revised government policies on financial aid, be instituted as soon as possible, and that no further changes in tuition fees, grants or loans be introduced until four conditions have been met:

- (1) a contingency repayment factor be instituted as part of the loan system in any government student aid scheme,
- (2) a well designed transitional program

(See page 2, col. 1)

Two student Councillors are Rhodes Scholars



Paul Cadario, left, and Brian Morgan, right, will be going to Oxford next year as Rhodes Scholars. Mr. Cadario, fourth year Civil Engineering student, is chairman of the Governing Council's Internal Affairs committee, and Mr. Morgan, in fourth year in Arts and Science at Trinity College, is a member of the Council's Executive and Academic Affairs committees.



UTSA is seeking to strengthen its Board of Representatives

The University of Toronto Staff Association early in 1973 will announce the date for its election of officers, reports Sky in the November issue of the UTSA Newsletter.

A meeting will be held in each constituency in January, Mr. Jones says, to nominate at least two good candidates for an available seat on the Board of Representatives. All members of the administrative staff, whether or not they are members of UTSA, will be invited to attend the meetings, although only those who are members of the association may be nominators and candidates.

"One gloomy and glaring fault with the present Board of Representatives is that, of the 26 representatives, all but two were elected by acclamation ... on the strength of two signatures on a nomination form", Mr. Jones continues. "This by itself does not give our Board an overwhelming popular mandate from our membership. To aggravate the problem is the fact that only 11 seats on the Board were never filled ... We must therefore move quickly to improve the representative quality of our Board. Such representation can only be achieved through the increased activity of each constituency".

Russian, elementary to advanced, offered at Summer Workshop

The Centre for Russian and East European Studies, in co-operation with the Department of Slavic Languages and Literatures, will hold its seventh Summer Russian Workshop from June 18 to Aug. 10 next.

The Workshop program consists of eight-week (200 hour) courses, providing intensive training in the Russian language at both undergraduate and graduate levels and employing the most modern facilities for language learning. The courses are: intensive elementary Rus-

sian, intensive intermediate Russian, intensive advanced Russian, reading courses in history and the social sciences, reading courses in Russian literature and criticism, and exchange programs.

A number of bursaries, covering the tuition fee of \$200 in whole or in part, are available. The deadline for enrolment applications is April 16, 1973. Application forms and additional information may be obtained from the Executive Director, Summer Russian Workshop, Room 5024, Sidney Smith Hall, University of Toronto.

STAFF NOTES

Arts and Science

Dr. D. A. MacRae was in Rochester on Nov. 13 at a meeting called to advise on the future of the Mee Observatory. He also attended the Memorial Service for the late Dr. Shapley held at Harvard on Nov. 21. Dr. MacRae gave a seminar at CHESS, York University, on "Can Canada do Frontier Astronomy?" on Oct. 25.

Dr. S. W. Morris gave a talk on "Evolution of Galaxies" at York University on Nov. 8 at the University of California (Berkeley) on Nov. 9 and at the University of Guelph on Nov. 17. He also attended a Director's meeting of the A.S.P. in San Francisco on Nov. 10 and a Cal Tech party to celebrate the 400th anniversary of the discovery of Tycho's supernova on Nov. 11.

Dr. D. W. Smyth and Dr. K. R. Kroonen of N.R.C. represented the CAS at a meeting in Ottawa Oct. 30-31 to prepare a White Paper for the Minister of State for Science and Technology on the reaction to the Lamontagne Report. Dr. Kroonen was at Charlottetown, Nov. 17-20, doing super-synthesis maps of quasars on the NRAO computer from observations taken by him last year.

Dr. HELEN HOOG attended the celebrations of the Centennial of the Alumnae of Mount Holyoke College on Nov. 11-13. On Nov. 11 she gave the dedication address on the opening of the 24-inch telescope for the Five-Colleges Astronomy Department. On the 13th she lectured to an undergraduate course and gave a colloquium to the Five-Colleges Department.

Dr. T. BOLTON talked at the meeting of

the Niagara Astronomical Association recently and also appeared on Cable 8 T.V. Hamilton.

Dr. R. C. Rognon spoke to the Nov. 17 meeting of the Toronto Centre of the RASC on "Quasars and Cosmology at Kitt Peak". At the Dec. 15 meeting Dr. Garscadden will speak on the recent discovery of the radio outburst of Cyg X-3.

Victoria College

In October the 200th anniversary of S. T. Coleridge's birth was celebrated in lectures and exhibitions in various places in England, and also in Canada. Coleridge's life and the Borough of Coleridge exhibition in London at the Highgate Literary and Scientific Institute on Oct. 10, opened an exhibition and lectured to the boys of the school and guests at Christ's Hospital, Horsham, held a discussion meeting with post-graduate students in Cambridge, Oct. 20, and on the 27th gave a Friday Evening Lecture at the Royal Institute (where Coleridge and Humphry Davy both lectured) in London.

Prof. D. W. SMITH attended the second congress of the Canadian Society for XVIIth-Century Studies at Saskatoon (Nov. 9-12). He was re-elected to the Executive Committee of the Society.

Prof. S. WOOD and ROLAND LE HUREUX delivered papers at the congress on "La Lecture sociologique du drame romanesque", held under the auspices of the Graduate Department of French of the U of T (Nov. 11-12). Prof. Wood's paper was entitled "La mythologie sociale dans le *Mystère de Paris* d'Eugène Sue" and Prof. Le Hureux's "Objets et sociétés dans *Vous les entendez?* de Nathalie Sarraute".

Urge steps to ease hardships

(Continued from page 1)

developed which will offset hardship consequent upon changes: (3) prior notice of change be given to enable students and families to adjust their expectations and plans, (4) students already registered in programs be assured of the continuation of support provided by current aid plans until they graduate or cease to be registered.

Mr. Harding said that the resolution would be forwarded to the Minister of Colleges and Universities.

The proposed By-Laws and Rules of Procedure for the Governing Council, which had been introduced for many weeks, were prepared by W. B. Harris, who paid a special tribute to Principal Hallett of University College and Associate Dean Scane of the Faculty of Law, who had devoted an immense amount of time and effort to the task and had considered a multitude of comments and suggestions that had come from Council members.

In discussion of the draft By-Laws and Rules of Procedure (which was not completed), Edward Dunlop commented on the very considerable difficulties involved in framing rules for a body which might be considered to be a semi-parliament making laws for the university, or as a Board of Directors concerned with the finances of the institution and considering policies brought forward by the management, or as a debating society, a forum where different opinions may be advanced for the guidance of the administration. His own preference was for the semi-parliament model, and he felt that difficulties might arise if

actions are made by simple resolution only; determinations of law or policy are then difficult to extract from the general welter of the minutes. A lack of precision exists in various resolutions already adopted by the Council; for example, what is meant by the term "guide-lines" — something that must be followed or something that may be departed from at will? Minutes, in the Municipal Act, are to be records of resolutions and other decisions without any comments; this makes it easier to distinguish that which was done from that which was said. Mr. Dunlop had some further technical comments relating to the form and the preparation of Council agendas. He made it clear that he was not suggesting changes in the present draft, but rather calling the attention of the Council to matters that might cause difficulties in the future and require modifications — quoting Jefferson to the effect that *moderate* imperfections should be borne with, because we can accommodate ourselves to them and construct practical methods for rectifying their ill effects.

Principal Hallett replied that the former Senate of the University had operated in a manner closer to Mr. Dunlop's preferred model, with first, second and third readings of its legislation and consolidated Statutes maintained. It is in the light of its experience the Governing Council would like to go further in the direction of formality, the rules can be changed accordingly.

Further consideration of the draft By-Laws was postponed until the January meeting of the Council, which will be held on January 18th, 1973.

COMING EVENTS

DECEMBER

15 FRIDAY

Lecture
Chemistry

Supper

17 SUNDAY

Music

18 MONDAY

Lecture
Medicine

Medicine

Music

19 TUESDAY

Music

27 WEDNESDAY

Athletics

JANUARY

9 TUESDAY

Lecture
Law

14 SUNDAY

Films

16 TUESDAY

Lecture

18 THURSDAY

Lecture

U of T High School Hockey Tournament, Dec. 27, 28 and 29.

Varsity Arena, Dec. 27 — 10 a.m. to 10 p.m., first round; Dec. 28 — 12 noon to 6 p.m., quarter finals; 7 p.m. and 8:30 p.m., semi-finals; Dec. 29 — 8 p.m., championship.

SUNDAY

9

TUESDAY

Lecture
Law

14

SUNDAY

Films

16

TUESDAY

Lecture

18

THURSDAY

Lecture

27

WEDNESDAY

Athletics

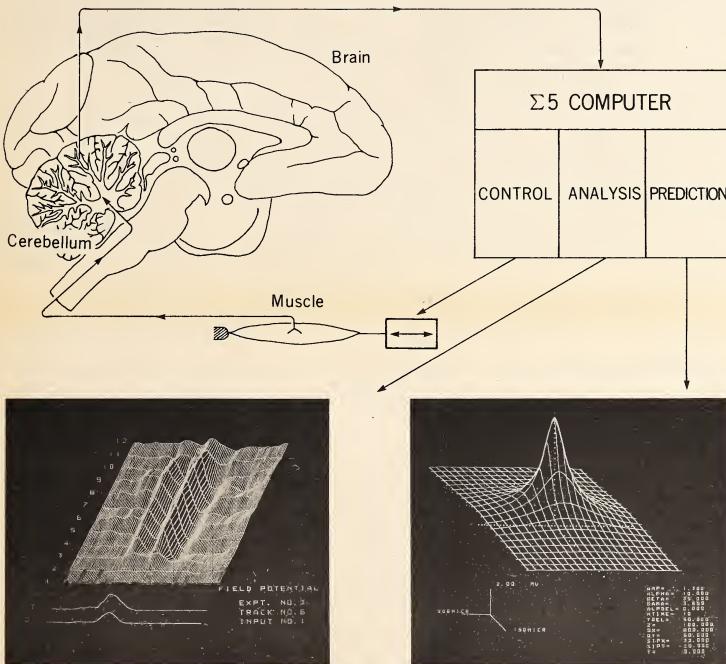
27

WEDNESDAY

Link computer to living brain for Parkinson research



The largest computer in the world would be quite unable to duplicate the incredibly complex workings of the human brain but medical scientists like Professor John T. Murphy of U of T's Department of Physiology are using computers to learn something of the way in which brains operate and the manner in which they control, for example, the movement of limbs.



At the turn of the century one of the pioneers of neurophysiology referred to the brain as "an enchanted loom". These graphics, produced by the Sigma 5 computer of the Medical Sciences Building,

linked in "real time" to a working brain, bear out the uncanny precision of this description. They provide a three-dimensional picture of changing electrical potentials in the brain as a limb is moved.

Merger and acquisitions seminar

As a new wave of business mergers and acquisitions begin, the Faculty of Management Studies is offering a three day seminar to meet the need for as-it-happens information on this subject. It will be the fifth of a series (which was interrupted last year to allow time for assessment of the consequences of new tax legislation).

From Feb. 12 to 13, inclusive, Canadian and U.S. experts will discuss a variety of topics related to mergers and acquisitions. These specialists include Ray Wolfe, president of The Oshawa Group; Charles Leighton, chairman of the board, CML Inc.; Lyman McGinnis, tax expert with McDonald Currie; Howard Beck of the legal firm of Davies, Ward and Beck; Prof. Sam Hayes of Harvard, Charles Hecht, lawyer and

expert on earn-out formulas; Tom O'Connell, mergers and acquisitions consultant; Isay Stemp, consultant and expert on valuations, and Prof. Paul Halpern, Management Studies.

The topics include the legal implications of mergers and acquisitions in Canada, integrating the acquisition, corporate mitosis - the why's and how's of spin-offs; earn-out formulas, evaluation - what is it worth? securities regulation, governing acquisitions, financial packaging, and the evaluation of potential acquisitions.

The fee for the seminar is \$325, payable in advance, and registration is limited. For more information, see Prof. Maurice Hecht, Co-ordinator of Executive Programs, Faculty of Management Studies, 928-4013.

Physiologists of the University of Toronto are using a large computer, linked in "real time" to a working brain, to probe the secrets of a nervous disease.

The work, proceeding under the direction of Dr. John T. Murphy, an associate professor, is part of a many-pronged attack by teams in a number of University of Toronto departments aimed at gaining a better understanding of and maybe even a cure for Parkinson's Disease, the so-called shaking palsy, and similar conditions.

When a muscle contracts in response to a message from the brain, thus producing movement, nerve communication is not on a simple one-way basis. First, the muscle and the eyes will telegraph back reports on the action taken and then the brain will use this information as the basis for further instructions to the same or other muscles. Information sent back to the brain in this way is called "peripheral feed back" and the pictures that it helps to build up in the brain are known as "central patterns".

These central patterns are continually changing as the action proceeds and the

context varies. At the turn of the century, one of the founders of modern neurophysiology, Sir Charles Sherrington, anticipated these changing central patterns when he spoke of the brain as an "enchanted loom".

Both peripheral feedback and central patterns are now thought to have a profound effect on the way an individual, including man, performs any motor action. Both are now the subject of a detailed study in the Department of Physiology, which employs some of the most sophisticated equipment known to medical science.

Dr. Murphy's approach, a new one, uses a large computer, operating in "real time" to monitor, record and interpret changing conditions in the brain as a muscle is flexed. The visual display of this information is achieved via a television-type screen that provides a changing three-dimensional picture of varying electrical voltages and currents in different areas of the brain.

As the limb under study is moved under the guidance of continuing peripheral feedback, scientists are able to study the effect this has on existing electrical potentials.

The probes used are so delicate that they can sometimes sense the voltages in individual brain cells. The currents in such cases may amount only to a few hundred microamperes.

Several regions of the brain are currently under study in this work. One of the most fascinating is the cerebellum, a section of the brain that has a co-ordinating function and is deeply involved in so-called "cooperative" action of groups of muscles. It is also thought to intensify some reflex actions and partially suppress others.

Clinical evidence indicates that one of the functions of the cerebellum is to minimize errors in the performance of motor tasks. Damage to the cerebellum may produce excessive oscillation during movements, similar to that which can be seen in one in which the front wheels of an automobile are incorrectly aligned or there is undue movement in the steering linkage, so that it veers from side to side when an attempt is made to change directions.

This, Dr. Murphy points out, suggests that the cerebellum may have the role of comparing intended motion with actual motion and initiating necessary corrections to achieve a given objective. The Toronto team believes that this may be achieved by internal "loop" interaction between nerve cells in the cerebellar cortex, or outer layer, and those deep down within the organ. As these investigations are extended to other parts of the brain, knowledge about the specific roles of each part and the interrelationships among parts will increase.

Hence the unique and complex computer system necessary for this research may yet allow man to peer inside the "enchanted loom", to learn how that most exquisitely organized and heretofore mystifying organ, the human brain, actually functions.

Dr. Murphy and others are hopeful that the knowledge thus gained will be of significant benefit in aiding the treatment of various disabling disorders of the nervous system.

EXHIBITIONS

"The Christmas Star", Theatre of the Stars, McLaughlin Planetarium, Tuesday to Friday: 3, 8 p.m.; Saturday: 2, 3, 30, 7, 30, 9 p.m. Sunday: 2, 3, 30, 5, 7, 30 p.m. Holidays: 2, 3, 30 p.m. To Dec. 31.

"Christmas Stories and Winter Scenes" in the Sigmund Samuel Foyer and the Science and Medicine Lobby, U of T Library. Followed in January by books, articles and artifacts from the past.

Drawings by Daniel Handspan. Scarborough College, To Jan. 12.

"Waves" by James B. Spencer. Hart House Art Gallery, Nov. 28 to Dec. 17. Hours: Monday 11-9; Tuesday-Saturday 11-5; Sunday 2-5.

Work of students in Department of Landscape Architecture, 230 College Street. To Dec. 15.

"Image of Canada". Special display of visualizations that document and illustrate all aspects of Canadian life and experience, over the decades. Canadiana Building, Until Jan. 14.

1,045 PhD candidates listed for employers

A publication designed to help find jobs for students nearing completion of their PhD. studies has been mailed by the Canada Council to potential employers across Canada.

The 1972 edition of the Council's Annual Directory of Doctoral Fellowship-holders lists 1,045 students in the third or fourth year of doctoral studies in the humanities and social sciences, who have indicated that they would be available for employment.

The Directory has been sent to more than 1,000 potential employers of PhDs, including deans and department heads at universities, private firms, personnel officers in the Public Service, Canada Manpower Centres, and the Association of Universities and Colleges of Canada.



A CANALETTO PRINT, the gift of the Italian government, has been presented to the University of Toronto in recognition of the University's contribution to the advancement of Italian studies and culture in Canada. The reproduction of Canaletto's *Piazzetta di S. Marco*, the original of which hangs in the Corsini National Gallery in Rome,

is seen above with, left to right, Prof. Vittorio Politi, recently appointed director of the Italian Cultural Institute in Montreal; President John Evans, Prof. S. B. Chandler, associate chairman for Italian studies in the Department of Italian and Hispanic Studies; Italian Consul General Sergio Angilletti, and Prof. G. L. Stagg, chairman of Italian

and Hispanic Studies. Prof. Politi, who has taught in Italy, Switzerland, and Australia, arrived in Canada in September from Cairo, where he headed the Italian Cultural Institute there and was cultural attaché at his country's embassy in Egypt. His visit to U of T was his first in Canada outside of Montreal.

Special committee appointed to study graduate student support

Summary of School of Graduate Studies Council Minutes, Nov 21:

Report of the Dean

1. It had been proposed to the President that Associate Dean Butler's term of appointment, which expires on December 31, 1972, be extended to June 30, 1973, thus bringing the term date in line with that of the other Associate Deans.

2. Suggested procedures for five-year reviews of Centres and Institutes in the School of Graduate Studies had been circulated for information, and comments on these proposed guidelines would be appreciated.

3. A resolution, approved at the Nov. 18 meeting of O.C.G.S. on the recommendation of A.C.A.P., had been circulated. It clarified the degree of confidentiality of curricula vitarum supplied to A.C.A.P. in connection with planning assessments.

Scientists honoured for alcoholism studies

The contribution of two Toronto medical scientists to the study of alcoholism was recognized when Dr. R. T. Potter, Ontario Minister of Health, visited the Alcoholism and Drug Addiction Research Foundation on Dec. 13 to present a commemorative Province of Ontario award to Robert Popham, the Foundation's director of research. Dr. Harold Kalant, professor of pharmacology, U of T and immediate director of research (Biological Studies) of the Foundation.

In July, at the 30th International Congress on Alcoholism and Drug Dependence, Prof. Kalant and Mr. Popham were joint recipients of the E. M. Jellinek Memorial Award, for "outstanding contributions to the study of problems of alcohol". The award includes a certificate, a \$1,000 cash prize and a sculpture of the late Dr. Jellinek, regarded as the pioneer and dean of scientists in the field of alcoholism.

Dr. Kalant, co-author of a recently published book entitled *Drugs, Society and Personal Choice*, pointed out that the book — now in its third printing — represents a distillation of thinking of the Foundation's research staff.

4. The session 1972-73 is the fifteenth year of operation of the School of Graduate Studies, and appropriate recognition of this anniversary will be made.

Reports of the Associate Deans

Division III

Associate Dean Scott reported that the Review Committee for the Institute of Applied Statistics had met and its report will be circulated prior to the December meeting of Council.

Division I

Associate Dean Parker reported that the Review Committee for the Institute for History and Philosophy of Science and Technology will present its report to the December meeting of Council.

Division II

Associate Dean Zakutai reported that the Executive Committee will be undertaking a five-year review of the Centre for Industrial Relations and submissions were invited.

Graduate student support

Assistant Dean Sherk reported that a special committee had been appointed to examine the entire question of graduate student support and was studying a detailed report covering all levels of support. The Committee would appreciate receiving any advice from departmental chairmen which might be of use to them in their study.

Proposed establishment of the Ward Bursary in Social Work

Council approved the establishment of the Ward Bursary in Social Work.

Recommendations for award of degrees

Council received a report on the degrees to be awarded at the Fall Convocation, 1972.

Other business

1. It was reported that the Report on Appeals Procedures which was approved by Council in May 1972 had not yet been submitted to the Academic Affairs Committee, pending clarification by legal counsel of certain items in the report.

2. President Evans, who chaired the meeting, reported that this year's meeting with the Committee on University Affairs would take place on Nov. 28. The format would be different than in the past in that there would be no written submissions but rather an exchange of views.

Academic opening

Applications are invited for a possible appointment (visiting or regular) at the junior level in Political Science, Scarborough College. Candidates should be competent to teach undergraduate courses in the fields of Soviet and American government. The appointment would take effect from July 1, 1973.

Please send *curriculum vitae* and names of referees to:

Office of the Chairman
Division of Social Sciences
Scarborough College
University of Toronto
1265 Military Trail
West Hill, Ont.

2 found guilty on assault count

Provincial Judge Charles Drukash on Tuesday found Mark Goldblatt and Miss Randi Reynolds guilty of assaulting police in the performance of their duty on March 12, during the eviction from the Senate Chamber of students and others who had occupied Simcoe Hall to protest the Senate decision on access to the John P. Robarts Library.

Judge Drukash found Mr. Goldblatt not guilty of a second charge, of obstructing a police officer in the execution of his duty.

Judgment was deferred until Dec. 21, pending the submission of a pre-sentence report to the court.

Before deciding upon the assault and obstruction charges, Judge Drukash said he had first to decide whether or not the accused were guilty of trespassing. He rejected the argument of the defence counsel, Austin Cooper, that those in Simcoe Hall felt they had a moral right to be there, as distinct from a legal right. He ruled that the accused were trespassing and that the police were present in the performance of their duty. Judge Drukash found that there was sufficient evidence that Mr. Goldblatt and Miss Reynolds had assaulted police, but he had doubts about the obstruction charge.

Rare Books and Archives reopens on Dec 21

The University Library announces the reopening of the Department of Rare Books and Special Collections, including University Archives, on Thursday, Dec. 21.

The Department is now located in new premises at the corner of St. George and Harbord Streets. Hours are 9 a.m. to 5 p.m. During the approaching holiday season, the Department will be open Dec. 21-22 and Dec. 27, 28, 29.

EXHIBITIONS

"Encoder". Condensed version of last year's successful exhibition of early Canadian handweaving. Exhibit has been arranged to mark the publication in mid-November of "Keep Me Warm One Night: Early Handweaving in Eastern Canada". Textile Gallery, ROM. Until Dec. 31.